

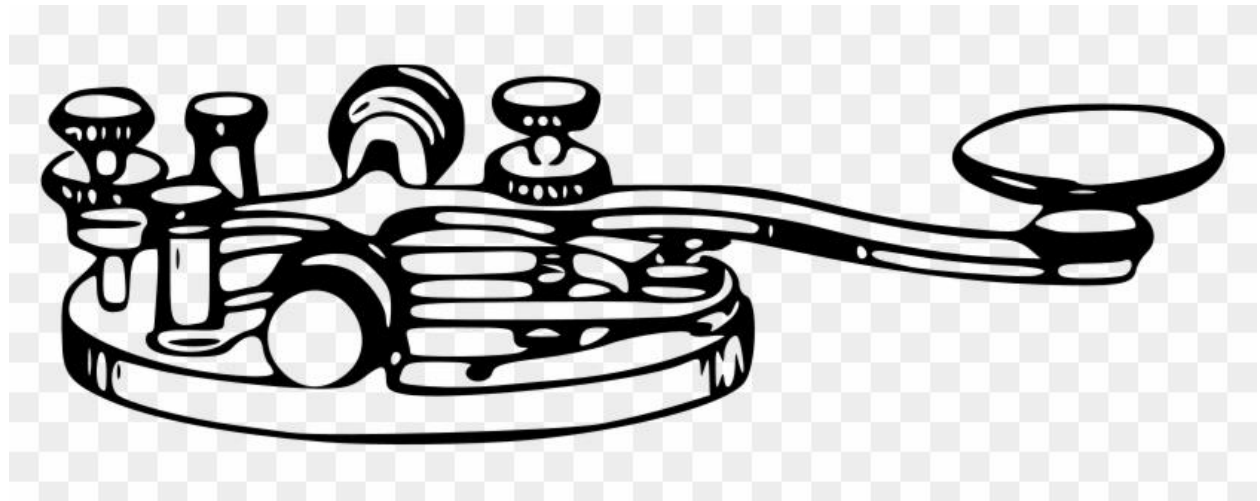


QSA-5

Marin Amateur Radio Society Monthly Newsletter

Established 1933

July, 2022



When all else fails, you can count on Amateur Radio

In Memory of Doug Slusher KF6AKU



From Our President:

I have to start by saying that Hugh Patterson KN6KNB works diligently and does a great job to produce our newsletter. It is always my fault that when it comes out late. He is always waiting for my little missive. I on the other hand have no excuse to offer.

Last weekend was Field Day and it seemed like that last time we the Redwood Empire DX Association and MARS collaborated was about the time Francis Scott

Key was penning the National Anthem. For me it was a lot of fun putting together the parts of that undertaking that were the historically assigned to MARS. I particularly want to thank the folks who helped me out. Tom Jordan KG6TCM, Dan Sobel N6HLZ, Charlie Benet AI6TT, Andrew Musselman KI6UOC, and a number of others. I also want to thank the organizing committee Ron Castro N6IE and Marilyn Bagshaw N6VAW, and everyone who came out for setup, strike and working through the night. We could not have done it without you. Well done! Now I have to do the paperwork.

Back in 1975 I started working on an IBM 370 158 that supported dumb terminals running a monitor called Super Wylbur (old programmers will quibble about my calling it a monitor but that is what everyone called it). At all events it was a text editor with a macro programming language that allowed us to create documents in a file system, and create interactive front ends for batch programs. You could also send 128 character long text messages to other operators who were logged in at the same time as you. We did not use OMG or LOL, but we did use TTFN and CUL8TR. Instead of LOL we used HI HI meaning that there was at least one other Ham on the system. As soon as we had a way to use a couple of million dollars of hardware to gossip, we did. We also used it to flirt. Back in those days the programmers were about 50/50 men and women. Ever since then we have been using various software platforms to facilitate communications and in theory improve productivity. Now there is a several billion-dollar segments of the software industry selling productivity solutions. At my day job I use Outlook, Sharepoint, and Teams. We are kinda of a Microsoft shop except we also use Google Docs. The challenge is remembering which platform is favored by the person you are working on a project with and where the documents are stored.

The point of this stroll down core memory lane is that I have the opportunity to see one of these tools work for our club. A new member of the club emailed me about recommendations for a first radio. I recommended he try our babble class, the Sunday morning net, and North Bay 2 Meter Critical Mass. What followed on the groups.io feed was the kind of spirited debate that we used to have on the air. Lots of folks joined in offering their thoughts, and I think our new member came away

with some answers. I really want to commend you all who participated. Opinions were thought out, arguments were in depth and respectful. Positions were bolstered with specifications and experience. All of that and no one descended into name calling which is quite impressive as we come out of isolation in a polarized world. Thank you all. When I get questions like this in the future, I will send them to the NB2MCM site.

73 de wa6uds

From the Editor:

Happy Fourth of July! We are seven months into 2022 and the year seems to be passing us by at a rapid pace. With the Covid 19 Pandemic slowing down and life getting back to a new normal, things might just turn out alright! It's nice to be able to spend time with people in person rather than via a video chat! With events starting up again across the Bay Area, I suspect the Marin Amateur Radio Society will be busy, which will lead to even more stories for the QSA-5!

It has been a slow news month. However, I'd like to thank all of you who have been sending in suggestions and links for the QSA-5. Due to my schedule, I am not able to attend many club events. This is where our club members come to the rescue. If you're at an event that involves the club, please take pictures, and send them to, along with the details. This way I can include them within the pages of the QSA-5. With that said, have a great July and keep those ideas and stories coming!

QSA-5Editor@w6sg.net



Remembering Doug Slusher KF6AKU

I met Doug Slusher KF6AKU back in the fall of 1970 in the electronics shop at Redwood high school. We were both freshmen and in the same section of first semester electronics with Truman Whorton WB6QFV SK as our teacher and as it turned out also our mentor. We immediately hit it off. We had similar family stories. Both of our fathers returned from serving in World War Two and used the GI bill to go to college. Both our fathers became teachers at about the same time and, had kids about the same time and of course lived in Marin. In spite of both being “nerds” we had different personalities. Doug was outgoing made friends easily, while I was more distant, and some would say aloof or perhaps shy. None the less we became lab partners in electronics and close friends. Doug’s family welcomed me into their home as if I were another one of their kids. His parents were the sweetest kindest folks you would be lucky enough to meet, and I was honored to be a part of scattering both his parents’ ashes. At that point I had the pleasure of meeting Doug’s brother Rich Slusher KI6UIM who is a member of our club.

Our teacher Mr. Whorton recognized something in both of us, maybe it was aptitude, maybe it was free labor. He asked us to help remodel the electronics lab. We built work bays with carpeted benches, built in test equipment, and trays for components used in lab exercises. Mr. Whorton was in the wood shop cutting out the plywood pieces which Doug, and I were assembling in the electronics lab. We reported to him that we had assembled the first one for his inspection. He gave our work a close inspection and asked about slight gaps in fit of the plywood

sheets. Doug confessed that in order to get the trays of components to slide in and out we had used finishing nails as shims. He took this a teachable moment and disassembled all our work and reassembled it himself. Of course, the trays would not slide in and out. Doug and I triumphed when Mr. Whorton allowed that we would have to finishing nails as shims.

Redwood high school had a radio club WB6NVY, and Doug and I were both members. Our club held car washes and painted house numbers on curbs to fund TH6DXX beam and rotor and built a collapsible tower out of pipe sections that sat on the roof of our classroom. Our club did field day on a hilltop in Tiburon. Keep in mind that this was the early seventies, and we were a lot more lax about safety then. We used a WWII vintage gas generator that would run for about five hours on a tank of gas. Its carburetor was such that once the engine was warm it would not restart unless it cooled for about half an hour. It also had a “muffler” made of steel pipe which at night glowed a dull red after an hour or so of running. Every four hours Doug and I took turns pouring gasoline into the running generator while the other stood back with a fire extinguisher in case of an accident. I would not let anyone do that now, but we were young and as I say it was a different time.

Doug and his brother Rich introduced me to car rallies. These were not the kind that involved a stopwatch but rather were more a succession of logic problems and observations of streets and signs. I was late to the party getting a driver's license, and Doug essentially taught me how to drive on rallies. Doug, Rich, and I also wrote these rallies as a team. I had some of the happiest times of my life as the three of us would drive around, thinking up puzzles, looking for odd intersections, or street signs, and laughing at each other jokes or quoting Monty Python, Stan Freberg, Alan Sherman, and Jonathan Winters. The sort of rallies we wrote involved stapling 5” by 8” cards with reflective tape and number and letters on them about 8 feet up on telephone poles. Sometimes a resident on a street where our course ran would object to the rally, the rallyists, and the card. We would roll up on a heated discussion between a local and a rallyist. I would cower in the car while Doug would with grace and charm talk both parties back from the edge of coming to blows or tearing down the card. The price of gasoline eventually caused a decline in the number of available rallies although they still exist and during the pandemic Doug, Rich, and I ran as a team on zoom using

google maps. Doug was the navigator; Rich was the brains of the team, and I was the comic relief. I will cherish those hours we spent together cooped up in a car or on zoom for the rest of my life.

Doug's family loved the out of doors, camping, fishing, and exploring. They invited me along to their annual camping trip to Mt Shasta. I missed a few of the forty-nine years I was invited but was there for most of them. In the early years there were four or five families all camping together as years past it dwindled to just a few of us. My family was not outdoorsy, so I learned to camp and fish from Doug and his family. Some many of the things I love to do, I was fortunate to do with Doug and his family.

In 2007 as the economy worsened Doug hired me at the Marin Independent Journal in Technical Services. We did phones, IT, and repaired hardware. All in service of a paper that had to come out every day. Once again Doug educated me in the workings of a daily paper. There are few things quite as impressive as hearing the press run up to speed or watching the press switch from one roll of paper to another while printing at speed. Sadly, even then the newspaper business was beginning to decline, and Doug's department got smaller and smaller until it was just the two of us. During the budget process Doug came to me and said that our department was only budgeted for one person in the next year. He went on to tell me that he thought my software skills would be of more use to the paper than his skills. I did argue with him but he was adamant and he retired and allowed me to keep my job. That is pure Doug, always thinking of the other guy.

Back in high school Doug and I were members of the Amateur Communications Society which later merged with the Marin Amateur Radio Club to form the Marin Amateur Radio Society. Doug was part of the team that engineered that merger. While all that was going on I was living in New York City and not really involved in amateur radio except the odd 2-meter QSO in NYC. I joined the new Marin Amateur Radio Society and in 2009 Doug asked if I would run for a seat on the board. I said OK and to my surprise I was elected. At the January meeting of the board, the board as a whole elects the officers and they saw fit to elect me president. Once again Doug led me to something I was proud to do and better able to do because of his mentorship.

I personally am not given to having a favorite anything. I could not tell you my favorite food, or movie, or book. Doug however always introduced me as his best friend. For knowing him and all the ways he has made my life better I cannot be prouder than to call him my best friend. I will miss him all the rest of my days. I will always aspire to be more like him. To quote Shakespeare as I am wont to do "He was a man, take him for all and all, I shall not look upon his like again"

New Members:

Chris Bigall KC6ZKO - Rohnert Park

Benjamin J. Winston KM6ZEB - San Rafael

Sean Peisert KN6UHT - San Rafael

Next General Meeting: July 1st, 2022



“Your parents hath given you a name. And the FCC hath given you another...”

Marin Amateur Radio Society Board of Directors Meeting June 9th, 2022

Call to Order 19:30 Hours (7:30 PM)

Attendance:

President: Curtis Ardourel WA6UDS (1)

Director: Skip Fedanzo KJ6ARL (2)

Director: Brian Cooley K6EZX (1)

Treasurer: Bruce Bartel N6VLB (1)

Vice President: Tom Jordan KG6TCM (2)

Director: Mark Klein KM6AOW (1)

Director: Ken Brownfield AB6JR (2)

Trustee W6SG: Mitch Martin WU1Q

Adopt agenda: N/A

Approve minutes of: 12 May meeting M/S/A

Secretary's Report/Communications: Brian K6EZX is working with Skip on NARCC recognition of his trustee status.

Treasurer's Report: Bruce N6VLB noted that we have a number of outstanding checks payable to the late Doug KF6AKU for expense reimbursement from the club which have not been cashed. Those need to be deposited before they expire. Curtis WA6UDS reported that Doug's brother, Rich, has indicated that he would consider them donations to the club and not pursue cashing them if he finds them.

Committee and other Reports:

Membership – 138 | 90%

Facilities: Curtis reported that the keytag system did not work for him recently when trying to enter the clubhouse. Skip indicated that others have had no problem accessing the club door since then, so it doesn't seem like a problem, but at the last Critical Mass some attendees with keytags did have trouble getting in. Skip KJ6ARL said Steve KB6HOH has received the latest inventory list of excess electronics in the clubhouse and will try to find appropriate homes for much of it before we take next steps. Steve mentioned that he has found some LED bulbs that are free of RFI and appropriate for use in the club to replace aging CFLs. Brian shared a [link to tips on LED bulb quality](#). Tom KG6TCM mentioned that he is willing to go remove the bag of charcoal from our roof that seems to have fallen there from the tenant or neighbor's property.

Public Service: Michael K6MLF reminded us that the Dipsea event is coming this Sunday.

Technical: Tom volunteered and encouraged all to pitch people with a technology to consider becoming part of our technical committee to expose them to ham radio and integrate their technical POV. He challenged all board members to think broadly about such recruitment. Curtis asked for suggestions of who should be at a pending lunch to gather the group knowledge of the technical side of the club that was largely stored in Doug's mind. Brian said he would attend these meetings to record the knowledge gleaned toward a unified set of club technical documents. Tom suggested we start with 1:1 meetings with technical

stakeholders to set the agenda for the group meeting. Curtis agreed that we should proceed with 1:1, then the group meeting. Skip will contribute all the NARCC coordination forms to start our base of knowledge.

VOAD/RCV: Skip reported that the group took part in Golden Eagle and that the next step is to have meetings with the CBOs and RCV operators as an after-action analysis phase.

VE Testing: Ken AB6JR reported that the June 18th exam is on with 2 signed up and 1 signed up for the July 9th exam.

NBAM: Michael K6MLF reported that a three-fold brochure for the NBAM now exists and that a web site is in progress. Rob NZ6J and Michael have cleared out a space in the back of the clubhouse for NBAM gear as previously discussed. The first shipment of gear is on the way and Michael said it's unclear whether the previously considered security cage is even needed. Milt described NBAM as a committee of MARS indicating that there is no need for separate insurance on the NBAM gear as it is essentially MARS gear. Rob installed upgraded mesh gear on 3 Wolfback nodes today. Michael asked Tom for help in aligning allies to put a node on Mt. Vision and other northerly locations. Michael asked Tom for help in aligning allies to put a node on Mt. Vision and other northerly locations. Tom suggested forming a stronger bond with Richard Dilman around the similar work he is doing and reaching out to the ACS RACES and RCV leads to develop County support options. Coyote Peak, for instance, may be an option through those channels.

Recreation: Tom reported that the City of Novato has taken our application for an early September date and confirmation should be coming next month (July). The subject of a picnic fee was tabled pending a decision on the eventual format of the picnic and, most importantly, the specifics of its food service.

Field Day: Curtis said we are lacking a plan to provide transport of our generator to the field day site and back to the clubhouse at the end of the weekend. 4 people and a trailer might be required, in his estimation. Milt KM6ASI volunteered the use of his trailer to be pulled by Tom's truck which was previously volunteered in this discussion.

Old Business:

1. Frequency coordination: Skip reported we are still pending with NARCC.
2. Drainage: Skip reported that we have time due to the current dry weather.
3. Transfer from Doug
 - a. Site Keys: Curtis has taken possession of some of these, but several are unlabelled and more are coming from Rich, Doug's brother. Also included is a sheet of passcodes.
 - b. Card Key System: Curtis has taken possession of this gear that Doug had.
 - c. Club Assets/Other assets: Curtis has been working with Rich to tease this apart from Doug's personal gear. Rich indicated that Doug wanted his gear to be donated to the club; A work party will be needed to transfer it at some time, relatively soon. Skip believes a replacement transmitter module for the 147.330 repeater may be among the gear.

New Business:

1. Celebration of Life for Doug: Curtis reports we will be working with Rich Slusher for this hybrid event at the clubhouse and on Zoom on July 10. An [obit ran on the Marin IJ](#) with an email RSVP link. Esther, our caterer, will be catering a light food presentation. Curtis will be sending out an invite as soon as this weekend. Steve KB6HOH suggested we establish a yearly award, or similar, named after Doug; Curtis concurred and said that thinking is in progress. Skip asked about the alcohol policy for the event to which Curtis said that the club would **not** be providing alcohol but that it would be allowed to be brought in, likely by Rich, and only in a moderate quantity.
2. Membership terms: N/A

Good of the Order: Brian asked to tour each of the MARS sites as trustee and Milt offered to coordinate that. Tom mentioned that Jerry WA6BXV would be a strong candidate for trusteeship in either of our two trustee positions. Milt reported that Jerry likes the idea, but he is already trustee for another club ([Hamilton Wireless](#)). This will be carried over to the next meeting.

Executive Session N/A

Adjourn M/S/A

B. Cooley

Next Regular Meeting 1 July 2022

Next Board Meeting 14 July 2022

**Marin Amateur Radio Club
Balance Sheet Comparison
As of June 29, 2022**

	AS OF June 29, 2022	AS OF June 29, 2021 (PY)
ASSETS		
Current Assets		
Bank Accounts		
B of A Building account - 8795	7,053.93	4,524.75
B of A General account - 4328	8,130.66	12,675.06
CD	25,000.00	25,000.00
Money Market	5,000.00	5,000.00
Total Bank Accounts	\$45,184.59	\$47,199.81
Total Current Assets	\$45,184.59	\$47,199.81
Fixed Assets		
Clubhouse - 27 Shell Rd. MV	58,983.00	58,983.00
Total Fixed Assets	\$58,983.00	\$58,983.00
TOTAL ASSETS	\$104,167.59	\$106,182.81
LIABILITIES AND EQUITY		
Liabilities		

Total Liabilities**Equity**

Opening Balance Net Assets	124,400.00	124,400.00
Retained Earnings	-22,228.35	-22,636.76
Net Income	1,995.94	4,419.57
Total Equity	\$104,167.59	\$106,182.81
TOTAL LIABILITIES AND EQUITY	\$104,167.59	\$106,182.81

Marin Amateur Radio Club
Profit and Loss
January 1 - June 29, 2022

TOTAL

JAN 1 - JUN 29, 2022, JAN 1 - JUN 29, 2021 (PY YTD)

Income

Auction Income	50.00	
Donations	118.98	187.03
Dues	6,305.00	6,641.47
Income from club activities	90.00	65.00
Public Service Refund	450.00	
Rent	15,600.00	15,025.00
Sales of Product Income	24.69	
Total Income	\$22,888.67	\$21,918.50
GROSS PROFIT	\$22,888.67	\$21,918.50

Expenses

Awards		200.00
Car & Truck	54.49	1,017.34
Equipment < \$2,500		322.79
Field day	350.00	
Food	850.00	
Garbage	287.04	188.56
Insurance	3,562.00	3,100.34
Legal & Professional Services	575.00	25.00

Meals	170.00	
Public Service Expense	841.09	
Reimbursable Expenses	3,917.42	943.31
Rent & Lease		150.00
Repair & Maintenance	885.00	951.86
Repairs & Maintenance	2,880.00	813.34
Repeater		-177.27
Taxes & Licenses	3,950.64	4,550.56
Telephone		93.24
Uncategorized Expense	275.00	
Utilities	1,757.05	4,876.80
VE Session	90.00	65.00
Water	398.00	378.06
Total Expenses	\$20,892.73	\$17,498.93
NET OPERATING INCOME	\$1,995.94	\$4,419.57
NET INCOME	\$1,995.94	\$4,419.57

Questions and Answers

This section of our publication is dedicated to any questions you have. If there is something you need or a problem you cannot solve, this is the place to seek assistance. Who provides the answers? Readers of the QSA-5 publication! Since we have not received any new questions for a few months, we are leaving a question up from March:

This question was not directly sent to the QSA-5 Question and Answer section of the newsletter, I believe that the subject matter warrants our attention. This is the email I received from Steve & Melanie Kramme KD6KXT & KD6KXS:

Hello, my wife and I are licensed HAMs in Novato and have not been on the air due to location and HOA issues. We would, however, like to install a VHF / UHF radio into our truck camper. I am seeking advice regarding which brand and features that they have that would best fill the needs of our local area and when camping. I contacted you in hopes that you could put me in touch with someone in the club that could answer my questions. I was thinking maybe meeting

someplace for coffee. Some time ago I attended meetings in Mill Valley, but my membership has lapsed. I know that with COVID concerns there may still not be any in person club meetings.

You can reach them via email at: skramme@gmail.com

Here are some links to get you started regarding an antenna mount for your rig and vehicle. Hopefully, some of our club members will follow up via email!

Here's a link to the Radio Reference website's forum page that discusses this question:

<https://forums.radioreference.com/threads/best-place-to-mount-dual-band-antenna-on-pickup-truck.324814/>

Here is a page dedicated to mobile antenna mounting from Comet Antenna:

<https://cometantenna.com/land-mobile/no-holes-mobile-mount/mobile-mount-faqs/>

This final link comes from KV5R and is nicely detailed and explains the subject clearly.

<https://kv5r.com/ham-radio/mobile-antenna-placement/>

LIFE IS SIMPLE



Marin Amateur Radio Society News

Doug Slusher KF6AKU Celebration of Life

Our club lost a great member, Doug Slusher, recently. Doug had a huge impact on the club and its members. To commemorate his life, the Marin Amateur Radio Society will hold a celebration of life for Doug Slusher. It will be held at the clubhouse at 27 Shell Rd, Mill Valley on Sunday 10 July starting at 2:00. Come down and share stories about Doug and socialize. Please note that if you plan to attend, please let us know by sending an email to rsvp@w6sg.net so we can make

sure there is enough room and enough refreshments.

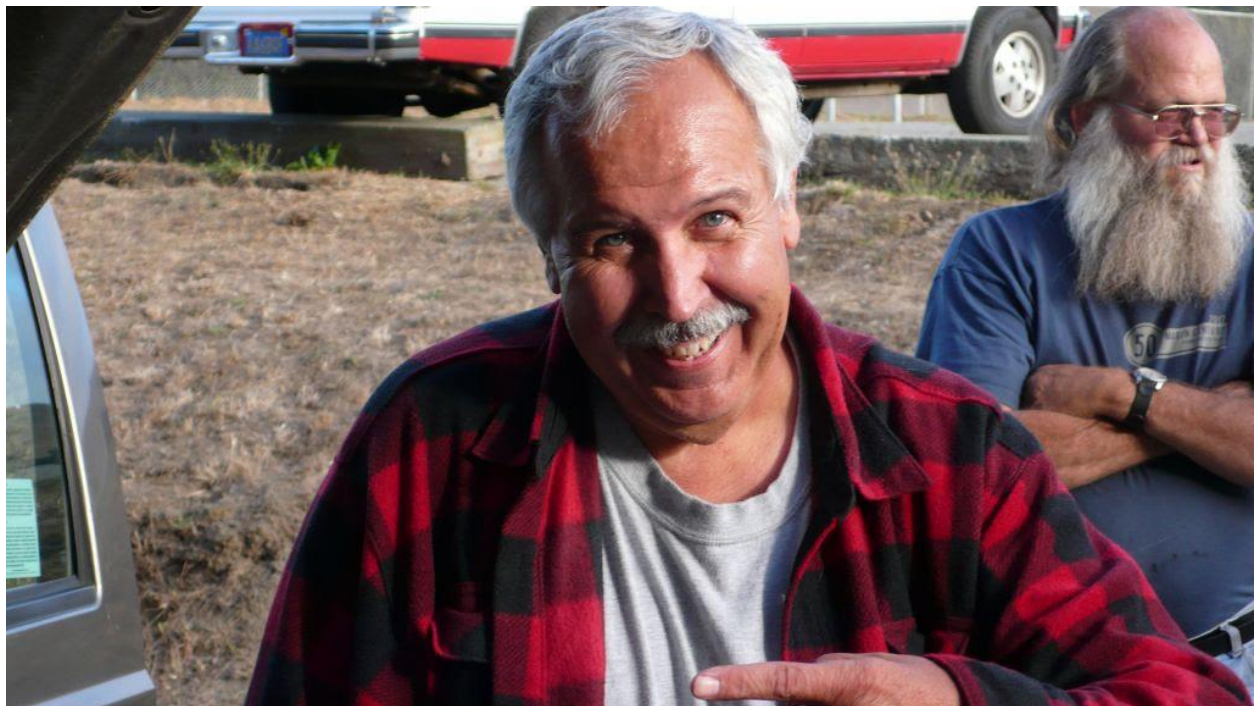
If you can't physically make it to our celebration, you can attend the event on Zoom. You can also attend via zoom and the invite is:

Meeting ID: 828 0627 8107

Passcode: 571900

<https://w6sg.us20.list-manage.com/track/click?u=99a8a0b4b26b27597c9897c9f&id=651c61b21b&e=b1be920436>

I encourage you to share any stories you have about Doug, and you know he most appreciates the ones that are humorous. The club will be doing a short video montage so if you have any pictures of Doug, please send them to rsvp@w6sg.net



San Francisco Marathon - July 24th - Volunteers Needed

One of the activities that amateur radio operators participate in is marathon races. Amateur radio operators provide much needed communications to races across the globe. The world-famous San Francisco Marathon is coming up on July 24th, 2022, and they need volunteers. This event is the day after our MCBC Dirt Fondo, so you might be committing to a double shift. However, the cause is a good one! If you are interested, contact Michael Fischer: michaelfischer149@gmail.com

Winlink and CARLA Slide Presentation

Winlink, is a worldwide radio messaging system that uses amateur-band radio frequencies and government frequencies to provide radio interconnection services that include email with attachments, position reporting, weather bulletins, emergency and relief communications, and message relay. The system is built and administered by volunteers and is financially supported by the Amateur Radio Safety Foundation.^R **Rob Rowlands NZ6J**, has put together a great slide presentation regarding winlink. If you want to know more about Winlink, please check out Rob's presentation:

https://docs.google.com/presentation/d/1H0QpNM66Y--DVE1srzc7nuqneD1EJD4Gg4-jO6GwNGA/edit#slide=id.gd24ce52c18_0_30

Rob also has a great presentation on **CARLA, the California Amateur Radio Linking Association**. The Mission of the California Amateur Radio Linking Association is to provide a wide ranging, robust radio communications system to facilitate daily, routine communication and provide emergency communications resources to local and state agencies and departments in times of disaster or public need. Here is a link to Rob's presentation:

https://docs.google.com/presentation/d/1_XNIamRxxloPhxmuYLeOQ-BmDwiEzHFrplz9ybulMw/edit#slide=id.p

How Critical Mass Started

The QSA-5 often reports on critical mass events in the Bay Area. While the QSA-5 has provided the “what is” regarding critical mass, we had not given you the “how” of the story, as in how critical mass started. Thanks to Michael Fischer, who forwarded this piece, you can now learn about the founding of this crucial service.

First written by AA6SF - SK - April 24, 2012)

Way back in early 2010, I was sitting at home looking at my HT radio that hadn't needed charging in some time. Since I got my license in January 2009 (Technician & call sign KI6NYQ), I had taken all the HCT (Ham Communication Team) classes offered by SF NERT and many emcomm classes offered by Santa Clara County ARES/RACES, even participated in their drills, volunteered as a radio operator for Bay to Breakers, SF Marathon, SF Nike Marathon, joined SF ACS; but I still did not feel like I knew that much about my radio and emergency communications and needed more radio practice opportunities.

I came to the realization that here in San Francisco there were few opportunities to learn more about my radio, simple UHF/VHF radio communications and few opportunities to practice using my dual band HT.

I decided to start a radio practice group. I thought I would gather together other ham radio operators to learn and practice with them and help them to learn and practice— about simple UHF/VHF radio communications. For weeks I scouted many venues in San Francisco and chose Spreckels Lake in Golden Gate Park. I announced the radio practice at the end of weekly ham nets, handed out announcements at an ACS meeting and an SFARC meeting.

Two of my best friends, Jan WB6SPX and Jim KI6RYE, said they would help and we three met over a nice bottle of red wine at Jim's house to work out (loosely) the details of the first practice. (Better than a garage in Los Altos.) I told them I had a name for the radio practice: “The 2 Meter Critical Mass Amateur Radio Practice”. **On July 10, 2010, the first 2 Meter Critical Mass Amateur Radio Practice took place from 1000 hours to 1200 hours at Spreckels Lake in Golden Gate Park.**

Twenty (20) hams were in attendance. Imagine that!

We talked on our radios. Some had trouble with Tone, Tone Frequency, offsets, phonetics, low battery power. There were lots of questions and the Elmers answered them.

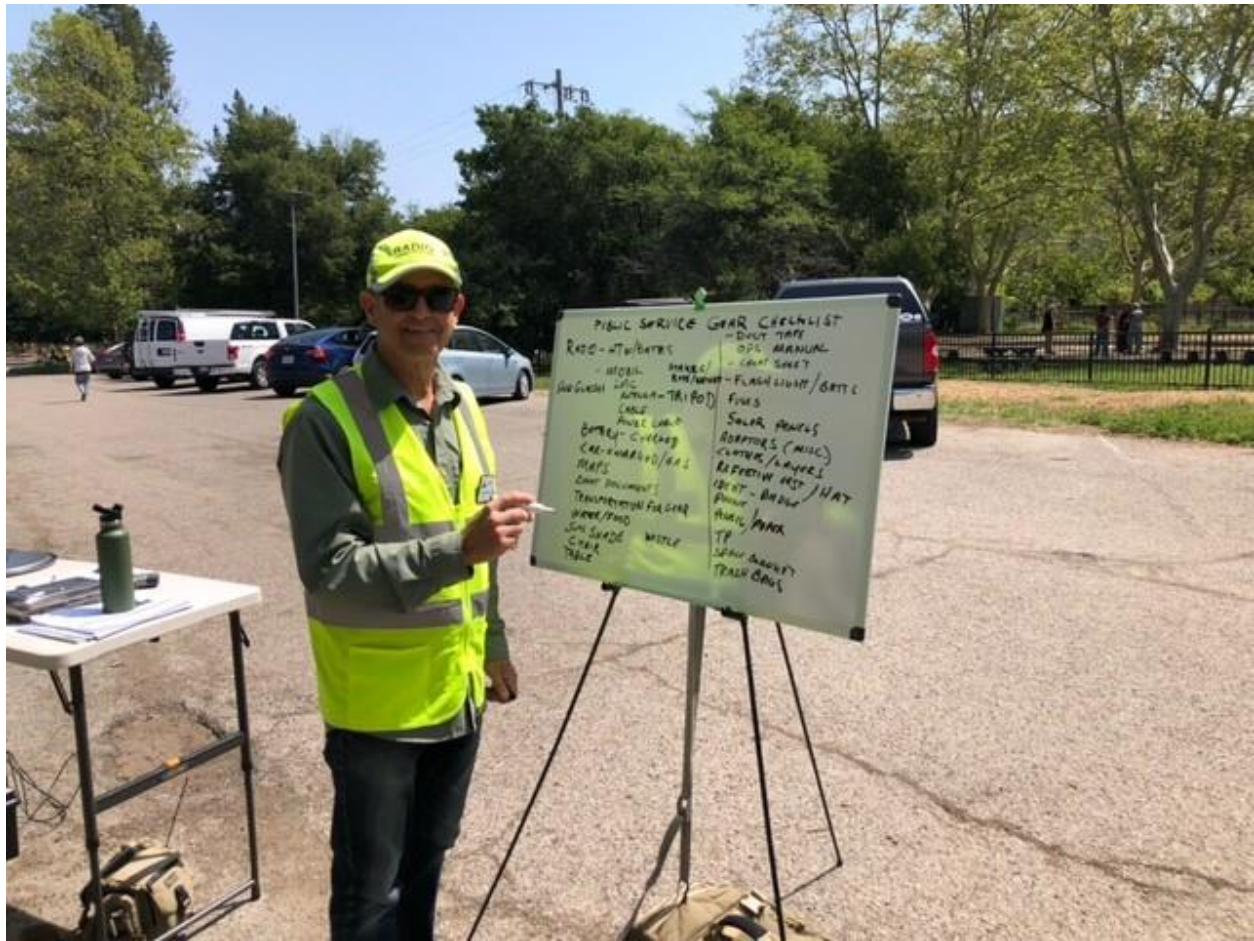
I learned a lot that day. Exactly what I had wanted. Since then, when we meet, we continue to talk on our radios, solve problems and learn new things about our radios. I have learned something every time we met. Only once a month. Only two hours from 1000 to 1200 hours on a Saturday. Where else can you go in the city to learn about ham radio and help others learn? If you know of another place for radio practice, please tell me.

Thank you Peter McElmury AA6SF-SK for developing this for our community. We look forward to carrying on your tradition.



Critical Mass Meeting

The QSA-5 is leaving this article in place until will get updated critical mass event reports. The April event will give those new to critical mass an idea about how the event is run. On April 24th, the Marin Amateur Radio Club held a Two Meter Critical Mass meeting. The meeting took place at the jury parking lot at the Marin Civic Center, from 10:00 am till 12:00 noon. There were ten people in attendance. The primary topic of discussion was the implementation of CTCSS and DCS to make radios selective for user groups and repeater access. They also compared checklists for gear required for public service events.

[illegible]



Meshing at Muir Beach

Here's a report from another MESH event recently held by the Marin Amateur Radio Society. The report comes to us via email from Michael Fischer: "Logging Ridge to Bridge participants on the same "live" spreadsheet that was being updated at Tennessee Valley and at net control. The Mesh enabled all of us to see the real-time progress of the event. To connect the three locations, Rob biked up to place two portable mesh nodes that linked the three points to the larger Bay Area Mesh. Bob Salter enabled the spreadsheet which was populated with the roster by Bay Area Ridge Council staff. It worked just fine - even in the face of stiff winds - which required some creative adjustments." Here are some photographs from the event:







North Bay Critical Mass Schedule & Updates

May Critical Mass Cancelled: Due to the passing of Doug Slusher, the May 22nd critical mass event was cancelled. Contact Rob Rowlands for details regarding the next critical mass event.

In you are interested in participating in our critical mass events, here is a schedule for critical mass meetings:

North Bay 2 Meter Critical Mass

Calling all hams! Attention all stations, attention all stations:

The Marin Amateur Radio Society sponsors a monthly opportunity for Marin and Sonoma hams (actually, anyone interested) to get together and practice radio protocol. **Rob Rowlands NZ6J, Milt Hyams KM6ASI, Michael Fischer K6MLF, James Renney KI6RGP, Doug Slusher KF6AKU**, and other local experienced hams will be there with an entertaining program, usually featuring hands-on practice with radios.

The ***North Bay Two-Meter Critical Mass*** sessions will be useful for newly licensed amateur radio operators. But it's also a chance for experienced hams to gather and learn new tips. And to become an Elmer to assist those hams who are just learning how to operate their new radios.

During the COVID-19 limitations on gathering, **we will meet on Zoom at 10:30 on the third Sunday of each month.** When those limitations are lifted, we will resume in-person gatherings at the Marin County Civic Center lagoon, just across from the Jurors' parking lot. Those **in-person sessions will start at 10:00—again, every third Sunday. If the third Sunday falls on a holiday, it'll be held on the 4th Sunday.**

To get the Zoom link, and to learn of the agenda for each monthly session, go to <https://groups.io/g/nb2mCM> and click on "subscribe."

Learn (or practice) the NATO phonetic alphabet; learn how to program your handheld radio in the field. Practice speaking on the radio at writing speed; learn how to "make every word an event." Learn about the two types of ambulances: ALS and BLS—and what's the difference between them. Learn the basics on how to communicate with satellites, using them as high-elevation repeaters to make long-distance contacts with your HT. Check out the "go-boxes" used by members to operate in public service events. Get familiar with the repeaters in our area. The basics of battery management, and more—something new each month. Check out this video on radio protocol produced by CNET tech journalist and MARS member Brian Cooley K6EZX:

<https://www.youtube.com/watch?v=HHxNOMGSwAI> That's an example of what we'll be practicing when we get together—again, **on the third Sunday of each month; join us!**

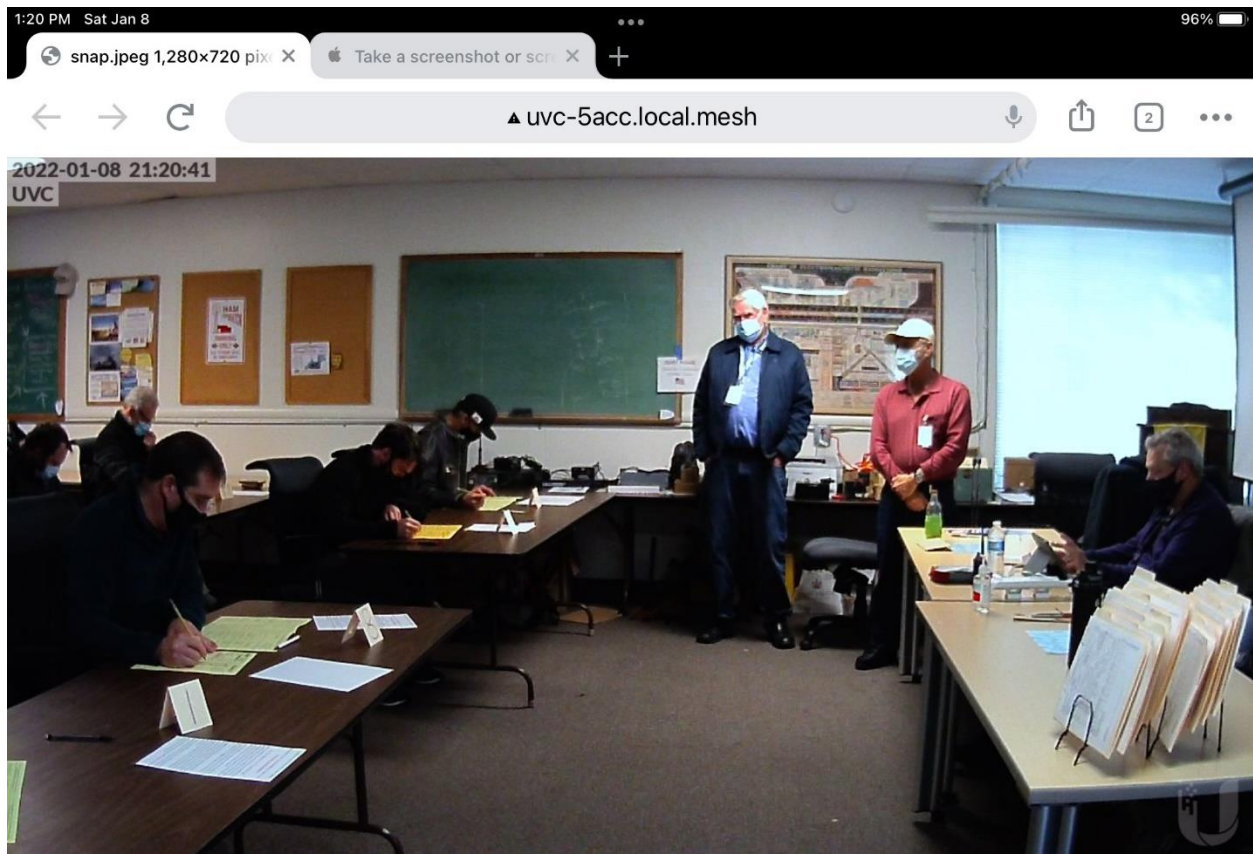
June 18th, 2022, VE Test Session Report

The Marin Amateur Radio Society held another Volunteer Examination session of on June 18th, 2022. One of the reasons the number of amateur radio operators grows each year is because of the dedicated work of Volunteer Examiners. **Ken AB6JR** and his team of Volunteer Examiners did a great job of testing new licensees and individuals upgrading their current licenses. Those who sat for their license exams on the 18th, had a seamless experience. It is extremely important to run a problem free, smooth testing session because the VE program has a great responsibility to both the examinees and the FCC. As always, Ken and his team did a brilliant job.

The June 18th test session had 6 applicants that sat for the exam. Four individuals passed their Technician exams. One each from Petaluma, San Francisco, Santa Rosa and Novato. An individual from Sea Ranch, Ca passed his General exam. The sixth person tried twice to pass his General exam without success.

Monday was a Holiday, so The FCC has not processed any of the paperwork. The paperwork was uploaded by Ken to the ARRL Saturday evening June 18. Ken was anxious to find out how the new process effects the issuance of licenses. The new hams received their callsigns this morning: KN6USW, KN6UTT, KN6UTU and KN6UTV. KN6UTV is Joseph Woo of Novato. Father of WA6CR John "Jack" Woo of Novato.

As of this report, there are two (2) applicants signed up for the July 9 session. However, there may be some last-minute applicants an walk-ins.



Here's a photograph of January's Volunteer Examination test session

2022 Exam Fee Updates

As of **April 19th, 2022**, the licensing fee you pay upon sitting for your amateur radio examine will be \$35.00. The new Amateur Radio license application fees will take effect on **April 19, 2022**. The Federal Communications Commission's authority to impose and collect fees is mandated by Congress.

The \$35 application fee, when it becomes effective on April 19, will apply to new, modification (upgrade and sequential call sign change), renewal, and vanity call sign applications. The fee will be per application.

Administrative updates, such as a change of name, mailing or email address, will

be exempt from fees.

VECs and Volunteer Examiner (VE) teams will not have to collect the \$35 fee at exam sessions. Once the FCC application fee takes effect, new and upgrade applicants will pay the \$15 exam session fee to the ARRL VE team as usual, and pay the \$35 application fee directly to the FCC by using the CORES FRN Registration system ([CORES - Login](#)).

When the FCC receives the examination information from the VEC, it will email a link with payment instructions to each successful candidate who then will have **10 calendar days** from the date of the email to pay. After the fee is paid and the FCC has processed an application, examinees will receive a second email from the FCC with a link to their official license. The link will be good for 30 days.

Additionally, the FCC stated that applications processed and dismissed will not be entitled to a refund. This includes vanity requests where the applicant does not receive the requested call sign.

The FCC published the notice in the Federal Register on March 23, 2022, stating that the amateur radio application fees, including those associated with Form 605 application filings, would become effective on April 19, 2022.

Further news and instructions will follow as the FCC releases them.

Ken AB6JR and his team of volunteer examiners has sent three dates to the ARRL for examination sessions. Those dates are Jan 8, April 9, July 9, and Oct 8, 2022. The testing sessions will start at 1:00 PM and will take place at the Marin Amateur Radio Society's clubhouse. Ken noted that the club is not restricted in the number of exam sessions taking place, meaning more could be added if need be.

There's been some discussion about possible evening examination sessions as well. Ken has also requested some information regarding do online exams, which would extend the scope of the VE team's abilities. **Jim Saltzgaber KM6WWY**, has volunteered to take the position of Assistant Lead Examiner, should anything

happen to the lead examiner, Ken.

2022 is going to be a great year for the club's VE program! Again, a big thank you to Ken and his VE team for bringing new amateur radio operators in the fold. You can only grow interest in an endeavor by increasing the number of people involved. Anyone who has VE credentials and wants to help should contact Ken.

Wondering About Babble Class?

Have you ever had a radio related problem and after searching around the world wide web, found yourself frustrated and confused? Have you ever wished there was a place you could go to sit around and talk about all things ham radio? Your prayers have been answered!

The Marin Amateur Radio Society holds a weekly babble study class on Sunday mornings at our club house in Mill Valley. Here's what Germaine had to say about one of our babble classes:

Success!

The radio received Francis' transmission and in turn will transmit at 100W. It looks like I just need to clean up the effects of the saltwater environment the radio lived in for a good 20 years. (I don't think I have a photo of me in action at the nav station.) Thank you so much, Jan, and also for bringing the pastries. Thank you to the rest of the Babble class for the antenna tips and . . . who was it that finally got that fuse holder open? It was passed around like an offering basket.

Tom is very impressed with my new badge so thank you for wrangling that, Michael. I will show it off at the family zoom blab fest with my 91-year-old dad.

Take care, Germaine

You can join in the fun and learn something you probably didn't know from our club members. Here are some photographs of the last few babble classes:

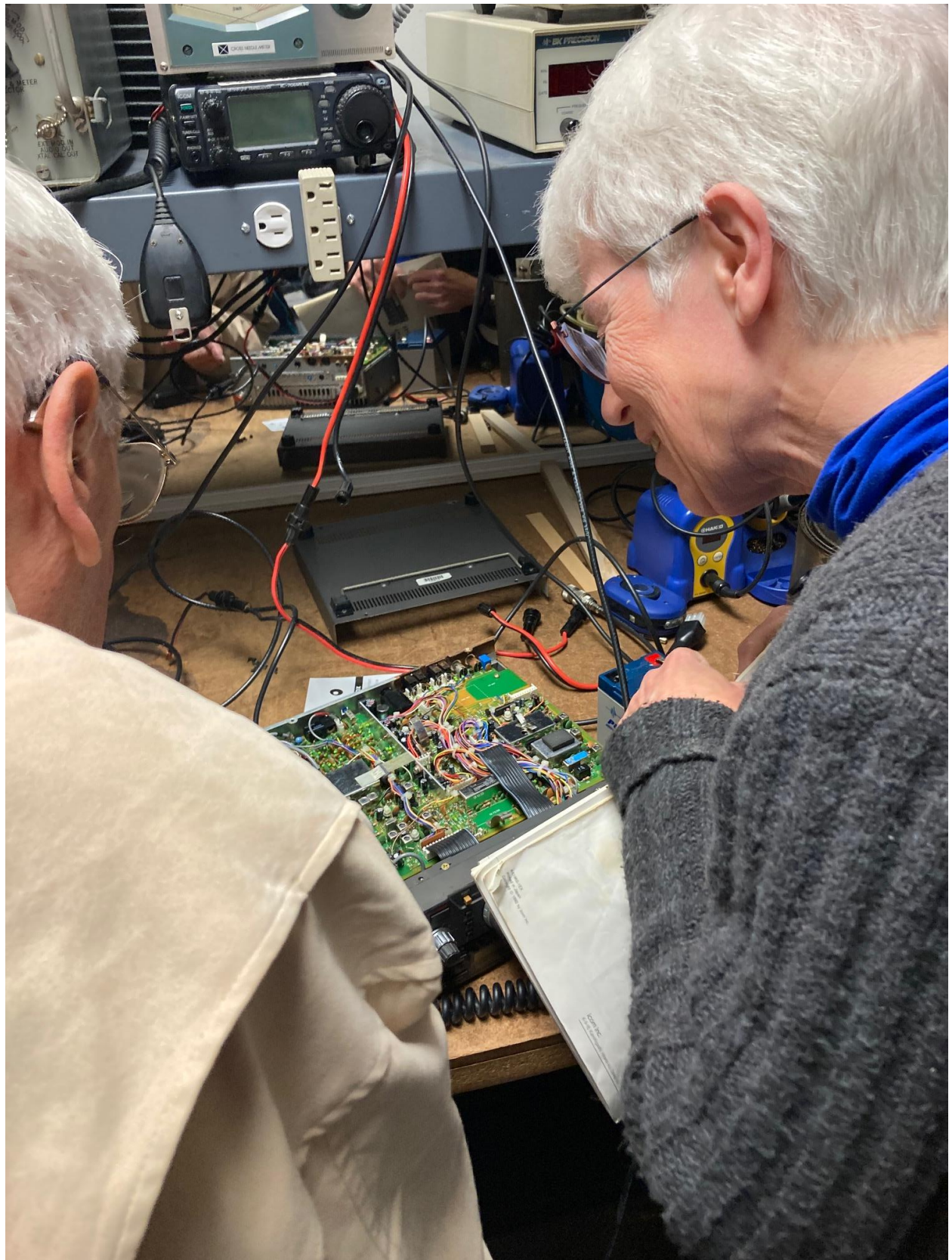












NBAM North Bay Area Mesh

New Backup Emergency Communication Network for Marin and Sonoma

The Marin Amateur Radio Society has received a grant of \$92,000 to install a microwave “mesh” network in Marin and Sonoma Counties. The mesh network, utilizing microwave frequencies allocated to amateur radio, will provide an alternative to the internet, should power outages or other events render the internet unusable. It is also intended to provide an important means of disaster communication with community-based organizations, such as food banks, in underserved and rural communities.

The grant was made by Amateur Radio Digital Communications, a Seattle-based nonprofit funded by proceeds from the sale of microwave frequencies to cellular telephone providers.

The Marin-Sonoma network, called NBAM (North Bay Area Mesh) is connected to the already-established BAM (Bay Area Mesh) which serves the emergency operations centers of San Francisco, San Mateo, and Alameda Counties. There is a parallel effort in Contra Costa County. The long-term objective is to provide a statewide communications network, operated by ham radio volunteers, that will provide a robust backup to existing means of communication among the various Emergency Operations Centers used by police and fire agencies in each county.

Using off-the-shelf low-power microwave antennas, NBAM will identify and install key nodes on hilltop locations up the US101 corridor from the Golden Gate Bridge north to Healdsburg and beyond. On the coast, the nodes will provide service to the rural communities of Tomales Bay, Bodega Bay, Timber Cove and up to The Sea Ranch. The Marin Amateur Radio Society will partner with—and provide equipment and training to—other radio clubs in each of the two corridors to place, maintain and utilize the mesh network.

BAM is working closely with the Sheriff's Departments in both counties. The Marin Amateur Radio Society has been an active nonprofit amateur radio Club since the 1930s with its own clubhouse (a retired fire station) in Mill Valley. Its FCC-licensed volunteers provide communications support to a dozen bicycle rides and footraces—including the fabled Dipsea—each year.

Quote from Tom Jordan, Emergency Management Coordinator or Rob Ireson, Chief Radio Officer, Marin County Sheriff's Auxiliary Communications Service: "The mesh will provide us with another redundant means of emergency communications—in a disaster, redundancy spells resilience."

Quote from Dan Ethan, Chief Radio Officer, Sonoma County Sheriff's Auxiliary Communications Service: "The importance of establishing alternative methods and modes of high-speed reliable communication between the North Bay Counties is more important now than ever before."

Quote from Curtis Ardourel, President, Marin Amateur Radio Society:

Quote from Kristen McIntyre, Pacific Division Director, national Amateur Radio Relay League: "Mesh networks like this are both a way to offer resilient communications during emergencies and a platform to further explore the development of mesh technology on the amateur radio bands."

Contact in Sonoma County: Jeff Young KM6Y 707 322 3221 Jeff.KM6Y@gmail.com

Contact in Marin County: Michael Fischer K6MLF 415 519 2201
michaelfischer149@gmail.com

Here are some photographs from an event held on April 17 in which the mesh connection was set up and tested. The network ran from Wolfback to Tennessee Valley to Coyote Ridge to Muir Beach.



NZ6J-NSM5-PubSvc-1

Location Not Available

[Help](#)

[Refresh](#)

[Mesh Status](#)

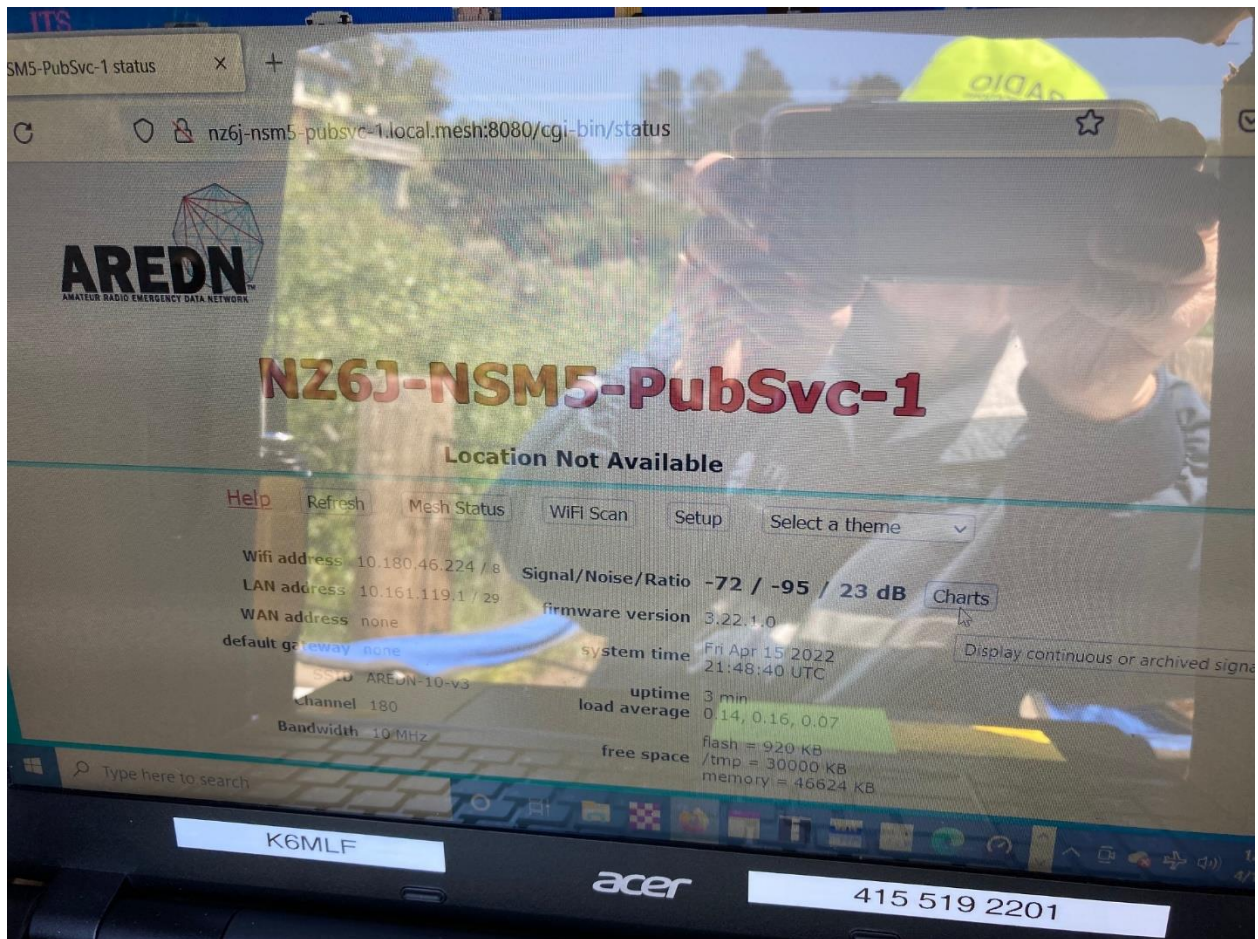
[WiFi Scan](#)

[Setup / LAN](#)

[Select a theme](#)

Wifi address	10.180.46.224 / 8	Signal/Noise/Ratio	-72 / -95 / 23 dB	Ch
LAN address	10.161.119.1 / 29	firmware version	3.22.1.0	
WAN address	none	system time	Fri Apr 15 2022 21:48:40 UTC	
default gateway	none	uptime	3 min	
SSID	AREDN-10-v3	load average	0.14, 0.16, 0.07	
Channel	180	free space	flash = 920 KB /tmp = 30000 KB memory = 46624 KB	
Bandwidth	10 MHz			









Help Extend the SF Emergency Wireless Emergency MESH (Update)

Since the previous article was about the MESH network, the QSA-5 decided to leave this posting up: The MESH network is not simply an idea being employed by our club for emergency communications. The MESH system was recently on the news in New York City where it's being used to provide affordable WiFi for city residents (note, this is a different MESH system than our club is using). MESH networks are becoming commonplace and easily available. The router needed for a MESH network connection can be found on Amazon. While the MESH system in New York City is being used for internet connectivity, it still serves an emergency service in

that people can receive important information via the MESH system in times of disaster. Here's a link to a news story about the installation of a MESH internet system in New York:

Sick of Traditional Internet Providers, BK Neighbors Are Setting Up Their Own WiFi with NYC Mesh

<https://bkreader.com/2021/05/10/nyc-mesh-brooklyn-new-york-community-mutual-aid-pandemic/>

Because the San Francisco Emergency Wireless Emergency MESH is such an important project, we are once again reposting this writeup about it.

From Rob Rowlands: We have about 6 nodes working in Marin so far and need people with property in high places to host more nodes. The mesh depends on line-of-site (LOS) paths between nodes interworking and while we have a great site on Wolfback ridge above Sausalito, there are multiple places we can't reach, for example the Club house! If you have access to homes or buildings with great views, we may be able to mount a node, regardless of whether you want to connect (see the following page for a picture of the node).

http://meshmap.sfwem.net/map_display.php#11/37.8586/-122.3836



This is an example of a MESH Node

All it takes is space to mount a \$50 radio on a wall and connect it via ethernet cable to a power feed adapter. The radio node is about the size of a small loaf of bread and can be painted to appease your family! Call Michael Fisher (415) 519-2201 or Rob Rowlands (415) 849 5667 if you can help.

Portable MESH Unit

This is a portable MESH unit Michael Fischer and Rob Rowlands have been working on. It consists of a Ubiquity or TP-Link 5Ghz radio, Shanqiu POE battery, Cat5 cables and zip ties. Total cost about \$125-150, including the case. Here's a link to the radio (just the radio) and below that is a photograph of the assembled

unit:

https://www.amazon.com/TP-Link-300Mbps-dual-polarized-directional-CPE510/dp/B00N2RO63U/ref=sr_1_1?crid=3ARISN3BGBB7X&keywords=TP-Link%2B5Ghz%2Bradio&qid=1651681076&srefix=tp-link%2B5ghz%2Bradio%2Caps%2C1163&sr=8-1&th=1



Just add a camera tripod or use a fencepost. If operating from the node, add a laptop or tablet with battery backup for extended time.

Ham Radio News

Each month, QSA-5 searches the internet for stories about amateur radio in the news. As editor of our publication, I merely present these articles and do not take a position regarding their message or content. Our first story regards the growing popularity of ham radio in Alabama:

Amateur or ham radio club gathering in Enterprise: Thanks to the Enterprise Radio Club, amateur radio is growing in Alabama.

<https://www.wdhn.com/news/local-news/amateur-or-ham-radio-club-gathering-in-enterprise/>

Why is it called Ham Radio? This one comes from our own Anthony Fedanzo:

<https://fieldradio.org/why-is-it-called-ham-radio/>

Ham radio operators: A long-lasting technology: A nice piece on the endurance of amateur radio and its operators

<https://www.winknews.com/2022/06/24/ham-radio-operators-a-long-lasting-technology/>

ARES® Activated in Oklahoma for Tornado Clean-Up Communications: One of the roles that amateur radio plays is aiding our communities during disasters. Here's a piece from the ARRL:

<https://www.arrl.org/news/ares-activated-in-oklahoma-for-tornado-clean-up-communications>

Amateur radio is more than just a cool hobby: We all know just how cool amateur radio is. This article articulates what we already know, giving the rest of the world a glimpse of just what it is we do!

https://www.timesnews.net/living/features/amateur-radio-is-more-than-just-a-cool-hobby/article_02f01e08-c01a-11ec-bc34-bf15c0fb6937.html

Are decommissioned satellites susceptible to hackers? As someone who holds cyber security credentials, I can assure you that this is an interesting topic. This is a video but newsworthy.

<http://www.southgatearc.org/news/2022/april/are-decommissioned-satellites-susceptible-to-hackers.htm#.Ymcq-trMLIU>

Scientists hope to broadcast DNA and Earth's location for curious aliens: Well, this article speaks for itself. It's quite interesting.

https://www.theguardian.com/science/2022/apr/18/scientists-hope-to-broadcast-dna-and-earths-location-for-curious-aliens?CMP=Share_AndroidApp_Other

The Uncertain Future of Ham Radio: Is the future of amateur radio in peril? Will younger generations become involved and thus, carry ham radio into the future? This article looks at those very questions:

<https://sdr.news/military-sdr/the-uncertain-future-of-ham-radio-2/>

Amateur Radio News: This is an interesting site for those interested in listening to ham related Podcasts:

<https://www.amateurradio.com/>

Our next two stories come from Rob Rowlands:

Russian Forces Invading Ukraine Using Civilian (Baofeng) Radios: Invading Russian forces in the Ukraine are using civilian radios such as the Baofeng UV-82. Here's a link to an image from Twitter:

https://twitter.com/CITeam_en/status/1498233574834716674

Here is another link from Reddit with an image of captured gear, including a Baofeng UV-82.

https://www.reddit.com/r/ukraine/comments/t2mj0i/they_really_are_using_baofeng_radios/

The last mile and the longest! Communications challenges February 2022: An interesting piece on the James Webb Space Telescope and the great complexities involved in communicating across vast distances in space.

https://docs.google.com/presentation/d/1VyQ2NRQhzpRPd7-qcyWB9TwFjFNwdV3XANcGoaLZgY0/edit#slide=id.g1152e6bfe65_0_1

Strong Winds Power Electric Fields in the Upper Atmosphere: From Ken AB6JR regarding electric fields in the upper atmosphere. Some interesting news from the NASA/Goddard Space Flight Center

<https://www.sciencedaily.com/releases/2021/11/211129172751.htm>

Is the Game Up for Baofeng in Europe? Yes, an article, thanks to Rob Rowland, about the radio many Hams love to hate. However, there's a review of the Baofeng GT-5R in the ARRL's QST January issue (page 39 Product Reviews).

<https://hackaday.com/2021/12/05/is-the-game-up-for-baofeng-in-europe/>

FCC Regulatory News

Here are the current regulatory changes and FCC news as it applies to Amateur Radio. This section of the QSA-5 newsletter was introduced last year. We will add new regulations and rules monthly, removing the older regulations and rules as new regulations/rules are introduced. As of the August 2021 issue of the QSA-5 newsletter, this list of FCC regulations and changes will be reduced, only covering this year's new regulations and rules. The newest regulations and changes will appear at the top of the list. Note that we are not able to cover every change the FCC has made this year within our publication:

FCC Proposes Record \$34,000 Fine for Alleged Interference and Unauthorized Transmissions During Idaho Wildfire: The FCC takes using unauthorized frequencies very seriously.

<http://www.arrl.org/news/fcc-proposes-record-34-000-fine-for-alleged-interference-and-unauthorized-transmissions-during-idaho>

FCC Has Resolved Technical Issues and Resumes Processing Amateur Radio License Applications: It's been a rough month for the FCC and their ability to process license applications:

<https://www.arrl.org/news/fcc-has-resolved-technical-issues-and-resumes-processing-amateur-radio-license-applications>

FCC Has Resumed Processing License Applications and Exam Session Files: The FCC was having some computer issues that put a temporary halt to their licensing and examination session fee processing. It appears the problem has been resolved:

<http://www.arrl.org/news/fcc-has-resumed-processing-license-applications-and-exam-session-files>

New FCC Application Fee Will Not Apply to Amateur Radio License Upgrades: This has been a confusing issue for many amateur radio operators looking to upgrade their licenses. This article should clear things up:

<http://www.arrl.org/news/new-fcc-application-fee-will-not-apply-to-amateur-radio-license-upgrades>

New Amateur Radio License Applications Fee to Become Effective April 19, 2022,
The fee changes will be here soon. Read more:

<https://www.arrl.org/news/new-amateur-radio-license-applications-fee-to-become-effective-april-19-2022>

FCC: Amateur Service Licensees May Not Use Radio Equipment to Commit Criminal Acts: This really should not have to be repeated by the FCC is still sending this out:

<https://www.arrl.org/news/fcc-amateur-service-licensees-may-not-use-radio-equipment-to-commit-criminal-acts>

Two Radio Amateurs Appointed to the FCC Technological Advisory Council (TAC)
FCC Chairwoman Jessica Rosenworcel named two prominent radio amateurs among her appointments to the FCC Technological Advisory Council:

<https://www.arrl.org/news/two-radio-amateurs-appointed-to-the-fcc-technological-advisory-council-tac>

FCC Seeks Attorney-Advisor for its Mobility Division. The Federal Communications Commission (FCC) has [posted](#) an opening for an attorney-advisor in the Mobility Division of its Wireless Telecommunications Bureau in Washington, DC:

<https://www.arrl.org/news/fcc-seeks-attorney-advisor-for-its-mobility-division>

FCC Orders Amateur Access to 3.5 GHz Band to “Sunset” It doesn’t look for amateur access to the 3.5 GHz band. While many amateur radio operators, especially those who hold new licenses, may not be familiar with this band, some older license holders (especially those with specialty interests) use it. Here is the article from the ARRL:

<http://www.arrl.org/news/fcc-orders-amateur-access-to-3-5-ghz-band-to-sunset>

The FCC Headquarters Relocates: The government organization that regulates amateur radio is moving their headquarters. Here’s a piece on the move from the ARRL:

<http://www.arrl.org/news/fcc-headquarters-relocates>

ARRL Urges Members to Join in Strongly Opposing FCC’s Application Fees Proposal: The ARRL is asking their members to oppose the FCC application fee proposal. Here’s the article:

<http://www.arrl.org/news/arrl-urges-members-to-join-in-strongly-opposing-fcc-s-application-fees-proposal>

FCC Grants 60-Day Waiver of Part 97 Data Rate Rules for Hurricane Relief Traffic: The FCC has granted a sixty-day waiver permitting radio amateurs handling hurricane relief communications on HF to use any protocol that would comply with

the FCC's rules but for the symbol rate limits.

<https://www.arrl.org/news/fcc-grants-60-day-waiver-of-part-97-data-rate-rules-for-hurricane-relief-traffic>

FCC Investigating Alleged "Jamming" on 40 Meters:

Amateur radio operators have reported that there is some sort of signal jamming on the 40-meter band. Here is an article from the ARRL that covers the story in greater detail.

<https://www.arrl.org/news/fcc-investigating-alleged-jamming-on-40-meters>

Propagation News

Here are some links dedicated to propagation conditions, space weather, sunspot cycle information and all things related to solar conditions:

The K7RA Solar Update: This is the K7RA solar update, which is updated regularly:

<http://www.arrl.org/news/the-k7ra-solar-update-734>

DX.QSI Propagation:

A simple, straightforward website for propagation conditions that is regularly updated:

<https://dx.qsl.net/propagation/>

Radio Society of Great Britain: What's New and Propagation Now:

A great resource from the UK version of the ARRL regarding solar activity and propagation:

<https://rsgb.org/main/technical/propagation/whats-new-propagation-now/>

SunSpotWatch.com:

A good general interest site for amateur radio operators who follow solar activity:

<http://sunspotwatch.com/>



DIY Radio References

We have added a few additional links to our list and will continue to do so as we discover more websites related to the Do-It-Yourself movement! QSA-5 is going to keep adding to the original list of online resources, bringing you more resources as we find them. If there is anything you think would be useful to other club members, contact me and I will be happy to include it in this reference section.

Microcontrollers and Single Board Computers: With the advent of the Arduino micro-controller board, the Raspberry Pi (a single board minicomputer) and Texas Instrument's Launchpad (also a single board microcontroller), Amateur Radio enthusiasts can build both accessories, such as antenna tuners, and fully functioning transceivers. I have spent the last year at the University of California studying these devices, learning how to use them and incorporate them into electronic projects. I was able to build two HF receivers based on the Arduino and Raspberry Pi devices. The best news of all is that these devices are inexpensive! I encourage you to check these websites out!

Arduino: The Arduino microcontroller board was the first to popularize these devices. They are inexpensive and can be used for a variety of radio related projects. I will include some links to radio related Arduino projects in the next issue of the QSA-5. Here's a link to the Arduino homepage:

<https://www.arduino.cc/>

Raspberry Pi: Did you every wish you could have a PC small enough to fit into your shirt pocket? Your dream has come true. The Raspberry Pi 4 is a fully functional Quadcore 1.6 GHz computer, about the size of a package of playing cards. It has an Ethernet jack, two USB 2 ports, two USB 3 ports and two HDMI ports. Next month, I'll post some links to radio related Raspberry Pi projects. Here's a link to their homepage.

<https://www.raspberrypi.org/>

Texas Instruments TI Launchpad: The Launchpad is Texas Instruments answer to the Arduino. The Launchpad is geared more towards advanced projects and is slightly more expensive. However, the Arduino still holds it own against this device. The Arduino also has more in the way of opensource software. Here is a link to the TI Launchpad homepage.

<https://www.ti.com/design-resources/embedded-development/hardware-kits->

[boards.html](#)

Tools for electronics: It is a lot easier to build or repair your electronics if you have the right tool. Paperclips and duct tape are not the solution to everything (unless you are McGyver – hopefully, you got the reference). Therefore, we added some links to suppliers of electronics tools.

All Electronics: A one stop electronics shop that has a variety of tools for your repair and building needs:

<https://www.allelectronics.com/category/780/tools-and-supplies/1.html>

Jameco Electronics: A supplier of decent tools at a reasonable price:

<https://www.jameco.com/Jameco/content/tools.html>

Electronic Printed Circuit Boards (PCB): If you design and build projects that require specific circuit boards, you know how difficult it is to find a board that will work for your purposes. Designing a board and then having it made can be expensive. Here is a company that has a large number of radio PCBs you can purchase and then add components to. They also can take your design and fabricate a PCB at a very reasonable cost. The company's name is **PCBway**:

<https://www.pcbway.com/project/>

Electronic Components and Parts: Many of us involved in amateur radio are constantly tinkering with electronics. It seems to be part of our genetic makeup! Here are some links to companies that sell electronic components and parts, starting with San Rafael's own Electronics Plus (Support local business).

Electronics Plus: It's great to have an electronics store close by for those times when you need a part immediately:

<https://www.electronicplus.com/>

Digikey: A good source for DIY and Maker projects as well as parts. They claim to

have the world's largest selection of electronic components.

<https://www.digikey.com/>

Jameco: This company is a good source for almost everything, especially mainstay items such as resistors, capacitors, etc.

<https://www.jameco.com/>

Homemade Antennas: Many new amateur radio enthusiasts put a great deal of time and effort into researching their first radio. However, they often neglect the most important component to a successful radio experience, the antenna. Even if you have some ham radio experience, antennas can be a daunting subject. Commercially manufactured antennas can be expensive and beyond your budget during these hard financial times. Even if you have the funds available to purchase an antenna, reading through the antenna's specs can be akin to reading some long lost ancient language. A good solution for increasing your knowledge of antennas and radio wave propagation, not to mention cutting the costs down, is to build them yourself. Here are some links to DIY (do it yourself) sites to give you a start:

Antenna building basics:

<https://www.wikihow.com/Build-Several-Easy-Antennas-for-Amateur-Radio>

Good Reference for several antenna types:

<https://www.hamradiosecrets.com/homemade-ham-radio-antennas.html>

A step-by-step guide for building a simple antenna:

<https://geardiary.com/2012/07/21/building-a-simple-ham-radio-antenna-without-soldering/>

Instructions for a VHF/UHF dual band antenna:

<https://www.instructables.com/Quarter-Wave-Dual-Band-VHFUHF-Ham-Radio-Antenna/>

Build an HF dipole antenna:

<https://www.electronics-notes.com/articles/antennas-propagation/dipole-antenna/hf-ham-band-dipole-construction-80-40-20-15-10-meters.php>

Introduction to antennas:

<https://www.onallbands.com/ham-radio-antenna-options-for-home-and-portable-operations/>

Ham Radio QRP Transceiver Kits: With the advent of SDR (Software Defined Radio), building fully functioning ham radios has become a lot easier and extremely inexpensive. While, having fewer bells and whistles, as well as being low power units, many have fully functional touchscreens and cover many of the HF bands:

An easy to build QRP transceiver. No soldering needed to build:

<https://www.hfsignals.com/>

An easy to build, single band CW kit:

<https://grp-labs.com/>

Offering several kits and finished transceivers:

<https://youkits.com/>

Propagation Websites: Propagation is a key factor in successful radio communications. Here are some links to websites that will help you with all your basic propagation needs:

Real time band conditions:

<https://qrznow.com/real-time-band-conditions/>

VOACAP band conditions:

<https://www.voacap.com/hf/>

ARRL Propagation Page:

<http://www.arrl.org/propagation>

Real Time HF Propagation Prediction:

<https://hamwaves.com/propagation/en/index.html>

Ham Radio Websites of general interest:

Ham Radio News: Here are some sites and articles you may find of interest regarding ham radio.

ARRL News Page, which is a good place to find national news regarding ham radio:

<http://www.arrl.org/news>

QRZ Now. Another good site for ham radio news from around the globe:

<https://qrznow.com/>

The Amateur Radio Newsline. An AP styled news feel page for amateur radio:

<https://www.arnewsline.org/>

DMR Radio

Creating a Codeplug

I've been using DMR radios for roughly one year. I was attracted to DMR because it allowed me to easily communicate, via radio, with people around the world. While there is no replacement for setting up an HF rig and antenna, it can be expensive and difficult, especially if you need to work with an HOA (homeowner's association). DMR gives amateur radio operators, especially those new to the hobby, an opportunity to rag chew around the globe!

In many ways, DMR is easier for global radio communication. You don't have to worry about mastering the use a bunch of knobs and buttons that fine tune your signal, as is the case with traditional, old-school HF rigs. However, the initial set up of a DMR radio can be daunting. You must first set up a WiFi hotspot and then create a codeplug. We examined setting up the WiFi connection last month. This month, we'll look at setting up a codeplug. What's a codeplug?

A codeplug is simply a name for a software file that gets uploaded to your radio. That's it. There is no great mystery to it! Well, in all honesty it is not as easy as conventional analog radio software used for a similar purpose.

Most new radios are programmed via a software program. You connect your radio to a computer, open the radio's software program and start entering frequency data. Each radio today comes with its own software for programming it. This can be a real pain if you own three or four radios, all with their own software program. Enter the CHIRP software program. CHIRP allows you to program a variety of radios from a single software program. CHIRP covers a large number of radio brands and models. However, when program a DMR radio you need to use a DMR software program, which is a bit more complicated!

I had problems when I first tried to program my DMR radio. I'd follow a set of instructions that came with the software, and it wouldn't work! When I did a Google search, I discovered that plenty of other radio operators had trouble with the programming of their DMR radios. There's a consensus that codeplugs are difficult to create. The problem people run into is that there are a few additional

steps to creating the codeplug and you need to follow those steps in a specific order. When you program an analog radio via a software program, it is very straight forward. All pertinent data is entered left to right, with one frequency per program line. DMR radio programming is similar, but you need to bounce back and forth between files and that is where things become seemingly complicated. It's in this back-and-forth action that things go wrong.

What I decided to do was to provide you links to the websites and webpages that I used to be able to program my DMR radio successfully. I suggest reading through them and watching the videos first, taking notes, and then start programming. Look at all the links, not just one. While the radio brands differ, the basics are the same.

Videos:

How To Write a DMR Codeplug in 2021:

<https://www.youtube.com/watch?v=T3sUntEVqCY>

How to program a DMR radio Codeplug:

<https://www.youtube.com/watch?v=VExx628R0DM>

How to Build your own DMR Digital Radio Code Plug - Ham Radio Q&A

<https://www.youtube.com/watch?v=h0ssXJUT458>

Articles:

Creating a DMR Codeplug

<https://www.jeffreykopcak.com/2017/06/11/dmr-in-amateur-radio-programming-a-code-plug/>

How to Build Your Own DMR Digital Radio Codeplug

<https://www.jpole-antenna.com/2018/02/20/how-to-build-your-own-dmr-digital-radio-code-plug/>